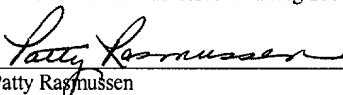


TO-1390 (REV. 1-98)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER 12322-02	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				U.S. APPLICATION NO. (if known, see 37 CFR 1.5) 09/914639	
INTERNATIONAL APPLICATION NO. PCT/US00/07281		INTERNATIONAL FILING DATE 17 MARCH 2000		PRIORITY DATE CLAIMED 17 MARCH 1999	
TITLE OF INVENTION: SYSTEM FOR SPECIFYING BUILDING UPGRADE OPTIONS AND DETERMINING BUILDING COST					
APPLICANT(S) FOR DO/EO/US GIOLA, Sandra L. and AMINLOO, Ramin					
CERTIFICATE OF MAILING I hereby certify that on August 31, 2001 this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service with sufficient postage in an envelope addressed to: Commissioner of Patents and Trademarks, Box PCT, Washington, DC 20231.					
37 C.F.R. § 1.18(a) <input type="checkbox"/> with sufficient postage as first class mail					
37 C.F.R. § 1.10 <input checked="" type="checkbox"/> as "Express Mail Post Office to Addressee" Mailing Label No: <u>EL 595990712US</u>  Patty Ragnussen					
Applicant herewith submits to the United States Designated/Elected Office (EO/US) the following items and other information under 35 U.S.C. 371:					
1. <input checked="" type="checkbox"/> This express request to immediately begin national examination procedures under 35 U.S.C. 371(f) for the above-identified International Application. <input checked="" type="checkbox"/> Assertion of Small Entity Status <input checked="" type="checkbox"/> Applicant hereby asserts status as a small entity under 37 C.F.R. § 1.27.					
2. <input checked="" type="checkbox"/> Fees				CALCULATIONS ONLY PTO USE	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	66 - 20 =	46	x \$18.00	\$828.00	
Independent claims	6 - 3 =	3	x \$80.00	\$240.00	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+\$270.00	\$	
BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)): <input checked="" type="checkbox"/> U.S. PTO was International Preliminary Examination Authority Where an International preliminary examination fee as set forth in 1.481 has been paid on the international application to the U.S. PTO: <input type="checkbox"/> and the international preliminary examination report states that the criteria of novelty, inventive step (non-obviousness) and industrial activity, as defined in PCT Article 33(1) to (4) have been satisfied for all the claims presented in the application entering the national stage: \$100.00 <input checked="" type="checkbox"/> and the above requirements are not made: \$690.00 <input type="checkbox"/> U.S. PTO was not International Preliminary Examination Authority Where no International preliminary examination fee as set forth in 1.481 has been paid on the international application to the U.S. PTO: <input type="checkbox"/> has been paid \$710.00 <input type="checkbox"/> has not been paid \$1,000.00 <input type="checkbox"/> where a search report on the international application has been prepared by the European Patent Office or the Japanese Patent Office: \$860.00 Total of above Calculations:				\$690.00	
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.0, 1.27, 1.28).				- \$ 879.00	
SUBTOTAL =				\$879.00	
TOTAL NATIONAL FEES ENCLOSED=				\$879.00	

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

3. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ has been transmitted by the International Bureau.
 - c. ☒ is not required, as the application was filed in the United States Receiving Office (RO/US).
 4. ☒ A translation of the International Application into English (35 U.S. C. 371 (c)(2)).
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ has been transmitted by the International Bureau.
 - c. ☒ is not required, as the application was filed in English.
 5. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☒ are transmitted herewith.
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
 6. ☒ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ has been transmitted by the International Bureau.
 - c. ☒ is not required, as the amendments were made in the English language.
 7. ☒ A copy of the international examination report (PCT/IPEA/409)
 - a. ☐ is transmitted herewith.
 - b. ☒ is not required, as the application was filed with the United States Receiving Office.
 8. ☒ Annexes to the international preliminary examination report
 - a. ☐ is/are transmitted herewith.
 - b. ☒ is/are not required, as the application was filed with the United States Receiving Office.
 9. ☒ A translation of the annexes to the international preliminary examination report
 - a. ☐ is/are transmitted herewith.
 - b. ☒ is/are not required, as the application was filed with the United States Receiving Office.
 10. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)) is transmitted herewith.
 11. ☒ A copy of the international search report (PCT/IS/210)
 - a. ☐ is transmitted herewith.
 - b. ☒ is not required, as the application was searched by the United States International Searching Authority.
 12. ☐ An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98.
 13. ☒ The above-checked items are being transmitted:
 - a. ☒ before 30 months from any claimed priority date.
 - b. ☐ after 30 months from any claimed priority date.
 14. ☐ A SECOND or SUBSEQUENT preliminary amendment.
 15. ☐ A substitute specification.
 16. ☒ A check in the amount of \$879.00 to cover the above fees is enclosed.

☐ Please charge my Deposit Account No. _____ in the amount of \$_____ to cover the above fees.
A duplicate copy of this sheet is enclosed.
- ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayments to Deposit Account No. 50-1329. A duplicate copy of this sheet is enclosed. ☐ A change of power of attorney and/or address letter.

SEND ALL CORRESPONDENCE TO:

STRADLING YOCCA CARLSON & RAUTH
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Attn: John W. Eldredge

SIGNATURE:

John W. Eldredge

Name

37,613

Registration Number

1 SYSTEM FOR SPECIFYING BUILDING UPGRADE OPTIONS
 AND DETERMINING BUILDING COST

5 FIELD OF THE INVENTION

5 The present invention relates generally to computer shopping systems and relates more particularly to a method for specifying upgrade options for a building, e.g., a new home, and determining building cost, wherein the upgrade options are selected and their desired place in the building is designated by dragging and dropping icons onto a floor plan of the home which is displayed upon a screen of a computer.

10 BACKGROUND OF THE INVENTION

15 Frequently real estate developers and commercial or home builders, particularly in planned communities, allow customization by buyers by providing a variety of different upgrade options. Usually, the upgrade options are selected from a list of those upgrade options which are provided by the real estate developer or builder for the particular home or other building being purchased. These upgrade options provide the buyer with an opportunity to personalize and customize their design, so as to accommodate the buyer's own particular needs or taste. At the same time, such upgrade options provide the builder with an opportunity to realize substantial additional revenue.

20 Because the practice of offering home upgrade options to home buyers has resulted in a substantial revenue increase for home builders, the number and type of upgrade options which are presently being offered has increased significantly. Due to this increase in the availability of such home upgrade options, the builders' sales managers must spend an undesirably large amount of time administering the sales of upgrade options to home purchasers. Such administration includes defining the home options selection, verifying the desired placement of upgrade options in the home and calculating the cost of the upgrade options, as well as ordering the upgrade options and verifying that the upgrade options are properly installed by the desired deadline. Of course, spending time administering the sales of upgrade options undesirably detracts from the time available to the sales managers for selling homes, which is the primary responsibility of the sales force.

25 Typically, the purchaser of a new home will designate where upgrade options are to be added by indicating the desired location upon the illustration of a floor plan in a book or brochure which is provided by the home builder. Usually, the sales manager reads a list of available upgrade options to the buyer and the floor plan is marked up accordingly.

30 However, the floor plans illustrated in such books and brochures are typically very small, e.g., usually only a few inches on each side. Even if enlarged, it is extremely difficult to indicate with any accuracy precisely where such upgrade options are to be located when using such a floor plan. This inability to accurately indicate where the upgrade options are to be located frequently results in the options being installed at incorrect or other than the desired locations.

1 For example, it will be appreciated that it is difficult to indicate precisely where along a
particular wall an electrical outlet is to be placed by marking the desired location upon a floor
plan which depicts one entire level of the home within a 3-inch by 5-inch square, or even in an
enlarged version of several times this size. It is equally difficult for the subcontractors to
5 accurately interpret such a marked-up floor plan. As mentioned above, these difficulties in
marking and interpreting such relatively small floor plans frequently result in the installation of
home upgrade options at locations other than those desired by the home purchaser. Indeed, when
using such marked-up floor plans, it is possible to overlook one or more upgrade options
altogether, and difficult to relate the options to standard features.

10 In an attempt to mitigate the problems associated with the use of such reduced scale floor
plans, a purchaser may have a floor plan enlarged. Although it is considerably easier to indicate
where upgrade options are to be placed when using an enlarged floor plan, the use of an enlarged
floor plan still suffers from inherent deficiencies which detract from its desirability.

15 Another problem of an enlarged floor plan is that it is subject to becoming cluttered and
difficult to read, particularly when many upgrade options are to be indicated and/or the desired
location of one or more of the upgrade options is changed. Changing the location of upgrade
options on such a paper floor plan is typically accomplished by crossing out the original
indication of the location of the upgrade option on the proper floor plan and then re-marking the
floor plan, so as to indicate the new desired location of the upgrade option. Of course, such
20 re-marking of floor plans is undesirably subject to error and misinterpretation and it is difficult
to make and indicate changes clearly. Further, the reduced quality, i.e., resolution, of such
enlarged floor plans contributes to the difficulty of properly marking and interpreting them,
which may add cost to the builder, subcontractor and purchaser.

25 Blueprints may alternatively be used for indicating where upgrade options are to be located
in a new home. However, this requires a home seller to provide a blueprint so that the blueprint
may be marked up in order to indicate the location of the desired home upgrade options. It is not
always easy or convenient to provide blueprints. Further, such blueprints are typically large and
difficult to manage. That is, carrying and handling a blueprint is undesirably cumbersome due
to its size. Typically, blueprints must be rolled up or refolded as they are moved from room to
30 room, thereby further contributing to the inconvenience associated with their use by prospective
buyers and sales personnel.

Further, there are typically few sufficiently large surfaces to lay blueprints out for
convenient marking thereupon. Thus, it is frequently necessary to hold the blueprint up against
a wall or to spread it upon the floor in order to mark the desired location of upgrade options
thereon. This difficulty in handling blueprints increases the likelihood of error.

35 The desired location of upgrade options or accessories may also be indicated on hand
drawn sketches. However, the usefulness of such practice depends substantially upon the
accuracy with which the hand drawn sketches are made. Further, the ability to properly interpret

1 such hand drawn sketch depends substantially upon the amount of care taken in drawing them
in the first place. Substantial skill and time are required to hand draw adequate sketches. Poorly
drawn sketches provide little help in accurately defining the nature and desired location of
upgrade options.

5 Although it is possible to indicate the desired location of upgrade options without using
any type of floor plan, blueprint or hand drawn sketch, it is generally undesirable to do so. For
example, the locations of upgrade options may be indicated upon a note pad by using textual
notes such as: Additional duplex wall outlet for master bedroom on north wall, 10 inches above
10 the floor and 4 feet from the east wall. However, as those skilled in the art will appreciate, the
use of such textual notes provides the inherent possibility that the notes will be incorrectly written
down or incorrectly interpreted later on, or even lost or misplaced. Further, many people simply
prefer to work with a graphical representation, i.e., a floor plan, rather than merely utilizing
textual descriptions.

15 In any case, as mentioned, such paper records as floor plans, blueprints, hand drawn
sketches and textual notes are subject to being misfiled or lost.

20 The foregoing describes some of the major difficulties associated with the communication
process between a consumer and a developer when the consumer decides to customize the living
space. In addition to the implications described above, the upgrade/customization decision also
informs not a few business consequences for a builder/developer which flow from that decision.
For example, one of the business events which flow from this decision is generation of
confirmations and change orders which serve to replace or modify existing structure or items with
upgrades. Purchase orders must be prepared in order to purchase certain necessary items to fulfill
an option request and the upgrade or option request must be communicated to, for example, a
production or building supervisor.

25 Further business processes which are affected by a consumer's decision to purchase
options or upgrade certain services or equipment include the mortgage application process of
which typically must be based on the full purchase price of a structure, including all upgrades,
options, enhancements, and the like. Since mortgage applications typically must be made and
approved prior to an optional build-out, there should be some easy methodology available for a
30 consumer to evaluate different upgrade options prior to making a final decision in preparing a
mortgage application based thereon.

35 Further, given the large number of products available for upgrade and the large number
of manufacturers that produce such products, a builder should have a relatively efficient means
available to perform analyses to determine which upgrade products and which manufacturers
offer the highest degree of profitability.

In view of the foregoing, it is desirable to provide a convenient, easy to use graphical
method for indicating particular upgrade options of interest and for indicating where upgrade
options are to be provided; and such that the information is generated easily, presented clearly,

1 easily changed and is not subject to being lost or misfiled and which enables a buyer to design the building within a budget.

It is further desirable to provide a methodology and a platform by which all of the business processes associated with upgrade options can be managed. Such a methodology and a platform should be able to not only manage the upgrade option selection, but also be able to manage the business events which flow from such a decision. The methodology and platform should be able to accept information from all participants in the process, be able to render that information into forms which are particularly useable by each of the participants and deliver synthesized output, in the form of analysis results and/or data that can be ported to peripheral participants, such as banks, mortgage/title companies, escrow companies, a contract sales force, and the like.

SUMMARY OF THE INVENTION

The present invention specifically addresses and alleviates the above-mentioned deficiencies associated with contemporary methods for indicating desired upgrade options and where upgrade options are to be placed. In accordance with one embodiment, the present invention provides a method for specifying upgrade options for a new building and for calculating the cost of the upgrade options and of the building, if desired.

More particularly, the method comprises the steps of scanning a floor plan of a building into a computer to form a digitized or scanned floor plan, displaying the scanned floor plan upon a monitor of a computer, displaying a plurality of icons representative of a corresponding plurality of different upgrade options upon the monitor along with the scanned floor plan, selecting desired upgrade options from those being displayed as icons and designating where the upgrade options are to be placed in the building by dragging the icons and dropping the icons at desired locations upon the displayed floor plan. Optionally, a paper copy ("hard copy") of the floor plan, showing the desired locations of the selected upgrade options, may be printed.

In one embodiment of the present invention, the same computer is used to both scan the floor plans and display the scanned floor plans along with the icons, so as to facilitate selection of the desired upgrade options. In another aspect of the present invention, one computer is used to scan the floor plans, and may be used as a server as well. One or more other computers can be used to display the floor plans along with the icons, so as to facilitate selection of the desired upgrade options. In either instance, the computer(s) may optionally be connected to a network such as the Internet, so as to facilitate the downloading of floor plans and the inputting of buyer information, as well as any other desired information.

In a preferred embodiment, a list of the upgrade options which were selected, along with their prices and a total price, is compiled, preferably simultaneously. The list facilitates verification of the selections by the buyer and also facilitates ordering of the upgrade options by the builder.

Optionally, a database of purchaser information, particularly in the case of homes, is

1 compiled. The database provides information which is useful to the home builder for facilitating the home purchase, as well as for facilitating the compilation of statistical information which may aid the home seller in making business decisions, such as which upgrade options to offer in the future.

5 Thus, the present invention provides a convenient, easy to use graphical method for indicating where upgrade options are to be provided, and for tracking the cost of the options and of the building. Because the information is stored in a computer memory, lost paper printouts of the floor plan may easily be replaced.

10 DESCRIPTION OF THE DRAWINGS

The foregoing and other features, aspects and advantages of the present invention will be more fully understood when considered with respect to the following detailed description, appended claims and accompanying drawings wherein:

15 FIG. 1 is a block diagram of the system for specifying building, e.g., home, upgrade options of the present invention, wherein a single computer is used to scan floor plans and specify desired upgrade options;

FIG. 2 is a block diagram of the system for specifying upgrade options of the present invention, wherein a first computer is used to scan floor plans and a second computer is used to specify the location of desired home upgrade options;

20 FIG. 3 is a flow chart showing generally the procedures associated with the practice of the present invention;

FIG. 4 is a screen presentation of a buyer information entry and display page according to the present invention;

25 FIG. 5 is a screen presentation of a comments entry and display page according to the present invention;

FIG. 6A is a screen presentation of a floor plan and upgrade options page according to the present invention;

FIG. 6B is a screen presentation of a site selection page according to the present invention;

30 FIG. 7 is a screen presentation of an pricing screen page according to the present invention;

FIG. 8 is a diagram of the data structure of the database information according to the present invention;

FIG. 9 is a flow chart of the operation of the present invention; and

FIG. 10 is a flow chart of the system administration of the present invention.

35 FIG. 11A is a semi-schematic illustration of a first portion of a nested operational flow of the display windows of the invention;

FIG. 11B is a semi-schematic illustration of a second portion of a nested operational flow of the display windows of the invention;

1 FIG. 11C is a semi-schematic illustration of a third portion of a nested operational flow of the display windows of the invention;

FIG. 11D is a semi-schematic illustration of a fourth portion of a nested operational flow of the display windows of the invention; and

5 FIG. 11E is a semi-schematic illustration of a fifth portion of a nested operational flow of the display windows of the invention.

DETAILED DESCRIPTION

10 The detailed description and drawings are as an example only. It is intended as a description of the presently preferred embodiment of the invention and is not intended to represent the only form in which the present invention may be constructed or utilized. The description sets forth the sequence of steps for constructing and operating the invention in connection with the illustrated embodiment. It is to be understood, however, that the same or equivalent functions and sequences may be accomplished by different embodiments that are also intended to be encompassed within the spirit and scope of the invention.

15 The present invention provides a convenient, easy to use method for indicating where upgrade options are to be provided in a new building, e.g., home, which is being purchased and also provides building cost calculations. A clear indication of what upgrade options were selected and where the upgrade options are to be installed is provided. According to one embodiment of the present invention, the purchaser selects desired upgrade options from a tool box or the like being displayed upon a computer monitor. The desired upgrade options are then placed, preferably by dragging, via a mouse, touch pad, pen or other pointing device, from the tool box to the desired location within the building, as shown upon a digitized or scanned floor plan which is displayed upon the computer monitor along with the tool box. Alternatively, the icons can be also placed by voice or movement recognition, etc.

20 Referring now to FIG. 1, the present invention generally comprises a computer 10 (which includes a monitor) in communication with a scanner 12 and an optional printer 14. Optionally, the computer 10 is also in communication with a network, such as the Internet 16.

25 Only a single computer 10 is required to practice the present invention, although it will likely be desirable to utilize a plurality of computers, as discussed in detail below. Paper floor plans may be scanned via scanner, 12, thus providing digitized or scanned floor plans for display by the monitor of the computer, 10. Alternatively, the floor plans may be loaded into the computer 10 by computer usable media such as a removable hard drive, CD-ROM, DVD, tape, etc. Floor plans may also be communicated to the computer 10 via a network such as the Internet, 16, if desired.

30 After the scanned floor plans have been displayed upon the monitor of the computer 10 and the desired upgrade options specified, e.g., by dragging and dropping the corresponding icons, then the floor plan, showing the locations of the desired upgrade options, may optionally

1 be printed via printer, 14. Specification of the desired upgrade options is discussed in detail below.

Optional connection of the computer 10 to a network such as the Internet, 16, may further be used to facilitate the convenient communication of floor plans, buyer information, software updates, upgrade option, costs, inventories and any other desired information to the computer 10 or from the computer 10 to a desired location.

Referring to FIG. 2, the scanner 12 may alternatively be in communication with a first computer 10A, while the optional printer, 14, is connected to one or more other computers 10B, which may be disposed at various locations remote from the first computer 10A, if desired. Both the first computer 10A and the second computers 10B are in communication with one another via a network, such as the Internet 16.

The first computer 10A and the scanner, 12, are utilized for scanning floor plans so as to provide digitized or scanned floor plans. The scanned floor plans are then communicated from the first computer 10A to the Internet 16.

A desired one of the computers 10B receives the scanned floor plans from the Internet 16. The specification of the desired upgrade options is then performed utilizing one of the second computers 10B, as discussed in detail below. Optional printer 14 may then be used to print out copies of the floor plans which show the desired locations of the upgrade options, if desired.

The use of a plurality of computers, e.g., a first computer 10A and at least one second computer 10B facilitates the scanning of floor plans at a central location, such as at an administrative office, and facilitates the selection of upgrade options at a different location, such as a development site. A plurality of such second computers 10B, each at a different development site, may be utilized to facilitate upgrade option selection at a plurality of different locations. Generally, only one first computer 10A is required, although a plurality of first computers 10A may alternatively be utilized, if desired, so as to facilitate the scanning of floor plans at different locations.

Indeed, by using a web page or the like, any computer may be used from any desired location to perform the scanning and/or upgrade selection tasks, as long as the user has authorized access.

Either the computer 10 of FIG. 1 or the first computer 10A and second computers 10B of FIG. 2 may be in communication with a web page which is served from a computer of a network, such as a local area network (LAN), a wide area network (WAN), an intranet or the Internet 16. Optionally, the web page may then be utilized to facilitate the entry of buyer information into a database (which may form a part of the web page), the entry of comments, as well as display of the floor plan and the upgrade option tool box, so as to facilitate specification of the desired upgrade options. Thus, a buyer information entry and display window (FIG. 4), a comments entry and display window (FIG. 5), a floor plan and upgrade options window (FIG. 6), and a pricing window for displaying and calculating costs (FIG. 7) may all be embodied, viewed and

1 utilized as web pages, if desired.

Each of the second computers 10B is preferably a lap top computer having a color display. Alternatively, the second computers 10B may comprise palm top computers, so as to facilitate convenient carrying thereof about the home being purchased while upgrade options are selected, if desired. However, those skilled in the art will appreciate that various other types and configurations of computers are likewise suitable. For example, the second computers 10B may alternatively comprise desk top computers, or any wireless network computer, if desired. Any desired combination of different types of computers may be utilized.

Referring now to FIG. 3, the preferred method for specifying upgrade options for a new building according to the present invention comprises scanning, 20, a floor plan, optionally entering, 22, buyer information, and dragging and dropping icons, 24, to desired positions upon the displayed floor plan. Optionally, the floor plan may be printed, 26, and/or reports may be printed, 28.

Entering floor plans into the system might be done by means of a variety of different methods, the details of which are of no particular concern and need not be discussed in great detail herein. It should be sufficient to mention that floor plans might be entered into the system by scanning a paper floor plan with a scanner (20 of FIG. 3) or by developing floor plans in a computer aided drafting (CAD) system and reading a generated file into a computer in conventional fashion. However entered, any particular floor plan might be identified by a simple file name and stored in a memory area allocated thereto in a computer system (10 of FIG. 1 or 10A of FIG. 2, for example). It need also be mentioned that floor plans need not be entered into the system as a unitary construct. Indeed, floor plans might relate to the floor plan of an entire structure, such as a dwelling, or a floor plan might be related to a bifurcated portion of a structure and might represent a single room, an area grouping of rooms, and the like. Specifically, a floor plan might be represented as a higher article structure that begins with the floor plan of an entire dwelling but might also include individual plans of particular spaces defined by that floor plan. A home might be entered into the system as a top level plan with individual rooms being selectable for viewing and modification by invoking the top level floor plan and clicking on a room with a mouse, for example. Alternatively, the floor plan might be divided into subsections by way of a menu, with a top level menu indicating the home floor plan as a whole, and with nested menus identifying individual rooms within that floor plan. In this particular case, selections might also be made by clicking on an individual item with a mouse, for example.

Thus, however entered and however configured for viewing, various floor plans of various structures may be entered into a master data base of the system in a manner so as to be available for viewing and for modification/option placement.

Buyer information, 22, is optionally entered so as to facilitate the use of such information in any desired manner. For example, the buyer information may be utilized to facilitate the printing and recording of orders, invoices, confirmation letters, etc.

1 Further, by forming a database comprising buyer information from a plurality of different
buyers, information regarding buying habits may be generated. For example, such a database
may be utilized to provide statistics regarding the percentage of buyers desiring particular
5 upgrade options. Such statistics may be used to determine which upgrade options should be
offered in the future.

Desired upgrade options are selected and their position within the building is designated
by dragging and dropping icons, 24, which are representative of the desired upgrade options from
the tool box, 101, (FIG. 6) to the corresponding location upon the floor plan, 100, (FIG. 6) as
described in detail below. In this manner, either the buyer or the seller may use a pointing device
10 to indicate upon the displayed floor plan, 100, what upgrade options are to be included in the
home purchase and where the upgrade options will be in the home.

If desired, the floor plan, 100, having the location of desired upgrade options indicated
thereon, is printed, 26, (FIG. 3) and may be provided to the buyer and/or seller, as desired, and
to subcontractors.

15 Further, reports may be printed, 28, (FIG. 3) so as to provide any desired information from
the database. Typically, an inventory of the selected upgrade options, including the itemized
prices and a total price therefor, is printed and provided to the buyer and/or seller.

Optionally, a copy of the floor plan, 100, and/or a copy of the pricing may be attached to
the sales agreement.

20 Referring now to FIG. 4, an example of a screen display of a web page which facilitates
the entry and display of buyer information is shown. Buyer information, such as the buyer's
name, address, telephone number, and mortgage company may optionally be entered on this page
and added to the database. Once entered, such information may be read from the same web page
or extracted from the database and used as desired.

25 Alternatively, the buyer information may be filled out by providing each buyer with a
questionnaire via e-mail. The buyer then e-mails the completed questionnaire back to the
computer, 10, 10A, or 10B where the responses are either automatically entered into the buyer
information database or may be entered manually by a system administrator.

30 After the buyer information has been provided by a buyer, then a buyer identification
number and a password may be assigned to the buyer. The buyer identification and password
allow the user to have access to their floor plan and option upgrade web page files (FIG. 6). The
buyer may be also provided access to the pricing web page (FIG. 7).

35 Referring now to FIG. 5, a screen display illustrates the comments web page which
facilitates the typing of written comments regarding the upgrade options to be purchased, or any
other desired information. The typed comments may be read from the comments web page or
printed as desired.

FIG. 6 is an example of a screen display showing the floor plan and upgrade option web
page. A tool box, 101, comprises a plurality of icons, 102, which are representative of various

1 different upgrade options. According to the preferred embodiment of the present invention, the
tool box, 101, is builder defined. The tool box, 101, may be configured so as to contain only
those icons which are representative of upgrade options which are available for the particular
floor plan, 100, being displayed. Preferably, the floor plan, 100, and the tool box, 101, are linked
5 to one another, such that the selection of a particular floor plan automatically results in the
display of a corresponding tool box, 101, having only those icons, 102, which are representative
of the upgrade options which are actually available for that particular floor plan, 100.

Upgrade options are selected from those represented by icons, 102, in the tool box, 101,
by clicking the left key of a mouse, for example. While holding down the left key of the mouse,
10 the selected icon, 102, is then dragged to the desired position upon the floor plan, 100. When the
icon, 102, is positioned as desired with respect to the floor plan, 100, the left mouse key is
released, thereby dropping the icon, 102, at that location. Dropping the icon, 102, at any location
upon the floor plan, 100, results in that icon, 102, being displayed at the position upon the floor
plan, 100, where it has been dropped, thereby indicating that the desired upgrade is to be
15 positioned correspondingly. Those skilled in the art will appreciate the various other pointing
devices, such as touch pads, cursor control keys, etc., may similarly be used to select and move
the desired icons, 102.

Optionally, upgrade options which must have particular locations within a room are made
to snap, i.e., go automatically, to the nearest permitted location when dropped. Thus, a wall
20 outlet dropped into a room near a wall will snap into place at the nearest location permitted upon
the wall.

Alternatively, upgrade options may be particularly located by use of a programmed two-
dimensional grid which overlays the floor plan. Thus, when an upgrade option is dropped. It is
positioned upon the floor plan at the nearest grid point.

25 Similarly, an attempt to drop an icon at a forbidden, undesirable or nonsensical location
optionally results in a visual and/or audible notification of the error. Thus, the user would be
alerted if an attempt was made to place a ceiling fan in a closet, for example. Optionally, this
feature may be overridden, if desired. Thus, if a buyer truly wants to have a ceiling fan in a
closet, then the buyer could choose to place an icon there after being warned that it is a non-
30 standard choice.

Optionally, comments can be associated with each dropped icon. Thus, for example, by
clicking on a dropped icon, a window opens, into which comments may be typed. Subsequently
clicking on the same icon causes the comments window to be redisplayed. The icon can change
color or otherwise indicate that comments are associated therewith. Alternatively, the typed
35 comments may be displayed along with the dropped icon.

If the floor plan, 100, is too large to be displayed on the CRT all at once, then scroll bars
at the bottom and right of the floor plan, 100, may be used to scroll up and down or sideways, so
as to cause desired portions of the floor plan, 100, to be shown. This particular case obtains

when the floor plan called from the database is an overall master floor plan. It should be noted that individual room floor plans might be called up from the database by accessing the particular room floor plan from a set of nested menu options. This particular approach will allow for greater granularity and precision in the placement of desired options.

Clicking on the binoculars or search button, 103, facilitates searching for desired files, such as files associated with a particular lot or buyer by entering either the lot number or buyer name when requested to do so. Selection window, 104, facilitates the selection of either the buyer information web page of FIG. 4, the floor plan web page of FIG. 6 or the pricing web page of FIG. 7.

Preferably, each user is automatically provided with the appropriate floor plan 100 for the building, e.g., home, that the particular user is purchasing. Alternatively, the user may be allowed to select from a variety of different floor plans. Typically, the buyer first selects the floor plan before the buyer is set up as an authorized user in the system.

The buyer may define several different sets of upgrade options, so as to analyze the viability of each set of options. Thus, if the total cost for a particular set of upgrade options is not within a buyer's budget, then the buyer can select a different set of upgrade options by resetting the floor plan screen.

Referring now to FIG. 7, the pricing web page comprises a column for the item or upgrade option being purchased, the quantity of each upgrade option being purchased, the price of the upgrade option being purchased, and the total price when a plurality of the same upgrade option is being purchased, i.e., when two ceiling fans are being purchased for \$99 a piece, then the total price for ceiling fans is \$198. Preferably, the total price for all upgrade options is also listed on the inventory web page. Further, the total price for all upgrade options plus the purchase price for the building is preferably listed either on the pricing web page or on a separate web page and may optionally be printed as a report or extracted from the database and used as desired. Such a separate web page may also include information regarding financing, such as the total finance charge, interest rate, etc.

Referring now to FIG. 8, the presently preferred interrelationships of the database record tables with one another is shown. The items within each record are defined as follows:

TERM	DEFINITION
Password	A customized alpha-numeric code that allows authorized users to access the software application and the designated files.
Area ID	A unique alpha-numeric code that indicates a specified area in the floor plan of the house.

TERM	DEFINITION
Area Name	A unique name to the Area ID.
Banner ID	A unique alpha-numeric code that identifies the banner image.
Banner Image	The image assigned to a specific entity for the purpose of advertising the entity's service or product.
URL	The URL address linked to the Banner Image.
Buyer ID	A unique alpha-numeric code that associates and assigns all applicable files to the Buyer. This association limits the Buyer access to ONLY the files that are assigned to the Buyer ID.
First Name	The first name of the buyer.
Last Name	The surname of the buyer.
Dear	The salutation used in all menu-driven correspondence generated by the application.
Address	The street in the mailing address of the Buyer.
City	The city in the mailing address of the Buyer.
State	The state in the mailing address of the Buyer.
Zip	The zip code in the mailing address of the Buyer.
Work Phone	The phone number identified by the Buyer as the phone number at his/her work site.
Home Phone	The phone number identified by the Buyer as the phone number at his/her home.
Mobile Phone	The phone number identified by the Buyer as the phone number of his/her mobile phone.
Fax Number	The phone number identified by the Buyer as the phone number of his/her fax machine.
Email Name	The email address to use to contact the Buyer.
Birth Date	The Birth Date of the Buyer.
Spouse Name	The name of the Buyer's Spouse.
Mortgage Company	The name of the Mortgage Company identified by the Buyer.
Mortgage Contact	The name of the Contact Person/Mortgage Broker at the Mortgage Company that is administering the home purchase transaction.
Mortgage Contact Phone	The phone number of the Contact Person/Mortgage Broker at the Mortgage Company.
Pre-Qualified	This field contains "Y" for Yes, or "N" for No, to identify if the Buyer is pre-qualified for a home mortgage by the mortgage company named in the Buyers file.
Contingency Sale	This field contains "Y" or "N" to identify if the Buyer has to sell his current home to buy the proposed house.
Escrow Company	The name of the Escrow Company identified by the Buyer that will be used in the home purchase transaction.
Comments	This field is open to comments added by Buyer and/or Sales Manger.
User ID	A unique alpha-numeric code that enables the user to access and use the software application.

TERM	DEFINITION
Security Level	A defined user status assigned to each user that details the access and rights to specific functions of the software application.
Status	A numeric label attached to each Buyer that identifies the current activity status. The status levels are: 1) Active – a file that is in the currently participating in the home design activity and home purchase process; 2) Inactive - a file that is not currently participating in the home design activity and home purchase process. A home purchase transaction was not completed. ; 3) Closed – a file that is not currently participating in the home design activity and home purchase process. A home purchase transaction was completed.
State	The standard US Post Office abbreviation of the state indicated in the address.
Status ID	A numeric label attached to each Buyer that identifies the current activity status. The status levels are: 1) Active – a file that is in the currently participating in the home design activity and home purchase process; 2) Inactive - a file that is not currently participating in the home design activity and home purchase process. A home purchase transaction was not completed. ;3) Closed – a file that is not currently participating in the home design activity and home purchase process. A home purchase transaction was completed.
Categories/Category ID	A unique alpha code that identifies the category of home upgrade options offered for sale by the builder. The categories are coded as: 1) Standard Options – options that are included by builder and selected by buyer in the home construction and base price, and 2) Custom Options – options that are included by builder at buyers request and specification at an additional cost to the base price of the home.
Lot ID	Each builder partitions the entire home-building property into smaller pieces of land identified as lots. The Lot ID is a unique alpha-numeric code that identifies the specific lot and/or property in the entire plan of lots in the named home-building community.
Lot ID	Each builder partitions the entire home-building property into smaller pieces of land identified as lots. The Lot ID is a unique alpha-numeric code that identifies the specific lot and/or property in the entire plan of lots in the named home-building community.

TERM	DEFINITION
Phase ID	Each builder partitions the entire home-building property into lots. After the lots are assigned a Lot ID, the builder then divides the lots into groups called phases. The phases identify a group of lots. The phases are usually assigned a numeric sequence identification code. Usually, the builder proceeds with the construction of the homes in an ascending numeric order of the phases. The Phase ID groups a series of lots to the appropriate phase of building as identified by the Builder.
Order Detail ID	A unique number assigned to the sales transaction which is automatically assigned by the application. This is used as a system tracking number and is not displayed to the user. The number is considered to be a unique transaction identifier.
Lot ID	Each builder partitions the entire home-building property into smaller pieces of land identified as lots. The Lot ID is a unique alpha-numeric code that identifies the specific lot and/or property in the entire plan of lots in the named home-building community.
Product ID	A unique alpha-numeric code that identifies the specific home upgrade options offered by the builder in the purchase of the home.
Section ID	A unique alpha-numeric code that defines the location of a specific section of the house floor plan image.
X	The horizontal axis of the image. One of two coordinates used to identify the location of the selected product icon.
Y	The vertical axis of the image. One of two coordinates used to identify the location of the selected product icon.
W	The unit of measurement used to identify the width of a Tool Box icon/object.
H	The unit of measurement used to identify the height of a Tool Box icon/object.
Comment	This identifies the field where the user can add an "Annotation" when placing a Tool Box icon/object on the home floor plan image.
Lot ID	Each builder partitions the entire home-building property into smaller pieces of land identified as lots. The Lot ID is a unique alpha-numeric code that identifies the specific lot and/or property in the entire plan of lots in the named home-building community.
Buyer ID	A unique alpha-numeric code that associates and assigns all applicable files to the Buyer. This association limits the Buyer access to ONLY the files that are assigned to the Buyer ID.
Order Date	This field identifies the date of the preliminary sales transaction.

TERM	DEFINITION
Required-by Date	This date indicates the date requested by buyer to finalize the sales transaction, i.e. closing date.
Completed-by Date	This date reflects the date the builder will have the home completed.
Phase ID	Each builder partitions the entire home-building property into lots. After the lots are assigned a Lot ID, the builder then divides the lots into groups called phases. The phases identify a group of lots and the phases are usually assigned a numeric sequence identification code. Usually, the builder proceeds with the construction of the homes in an ascending numeric order of the phases. The Phase ID groups a series of lots to the appropriate phase of building as identified by the Builder.
Phase Name	A unique alpha-numeric code that associates the name of phase with the Phase ID.
Status ID	A numeric label attached to each Buyer that identifies the current activity status. The status levels are: 1) Active – a file that is in the currently participating in the home design activity and home purchase process; 2) Inactive - a file that is not currently participating in the home design activity and home purchase process. A home purchase transaction was not completed. ;3) Closed – a file that is not currently participating in the home design activity and home purchase process. A home purchase transaction was completed.
Start Date	The date on which the construction of the identified phase of lots/homes will begin.
End Date	The date on which the construction of the identified phase of lots/homes will end.
Plan ID	A unique alpha-numeric code that identifies the home floor plan designs offered for sale by the builder.
Plan Base Price	The cost in U.S. dollars of the base price of the identified house plan.
Plan Name	A unique alpha-numeric code that associates the name of the home floor plan design with the Plan ID.
Product ID	A unique alpha-numeric code that identifies the home upgrade options offered for sale by the builder.
Prod_Type_Code	The name of the specific group of home upgrade options offered for sale by the builder, i.e. Electrical, Plumbing, Flooring, Appliances etc.
Product Name	The name of the specific item of home upgrade options offered for sale by the builder, i.e. recessed light, Moen Crystal Bathroom Faucets, Ceramic Tile, Whisper Quiet Dishwasher, etc.
Image Name	The name assigned to home upgrade product icons contained in the Tool Box.

TERM	DEFINITION
Category ID	A unique alpha code that identifies the category of home upgrade options offered for sale by the builder. The categories are coded as: 1) Standard Options – options that are included by builder and selected by buyer in the home construction and base price, and 2) Custom Options – options that are included by builder at buyers request and specification at an additional cost to the base price of the home.
Lead Time	Number of days after purchase order date that the builder will receive the home upgrade option commodity that the builder ordered from a vendor.
Unit Price	A numeric value expressed in US dollars that identifies the unit cost of a home upgrade option commodity.
Prod_Type_Code	The name of the specific group of home upgrade options offered for sale by the builder, i.e. Electrical, Plumbing, Flooring, Appliances etc.
Prod_Type_Name	The name of the specific item of home upgrade options offered for sale by the builder, i.e. recessed light, Moen Crystal Bathroom Faucets, Ceramic Tile, Whisper Quiet Dishwasher, etc.
Section ID	A unique alpha-numeric code that defines the location of a specific section of the house floor plan image.
Plan ID	A unique alpha-numeric code that identifies the home floor plan designs offered for sale by the builder.
Section Desc	The name of the location related to Section ID, i.e. bedroom, garage, first floor.
Section Image	The image of the location designated by the Section Desc.
Line Item	A unit used to measure each home upgrade option selected. Every product is considered to be 1 line item, even though it may be a duplicate product.
State	The standard US Post Office abbreviation of the state indicated in the address.
State_Name	The complete spelling of the state indicated in the address.
Status ID	A unique alpha-numeric code that identifies a status level.
Status/Name	A label selection assigned to a data element. The label selections are: 1) Active, 2) Inactive, or 3) Closed.

TERM	DEFINITION
Section ID	A unique alpha-numeric code that defines the location of a specific section of the house floor plan image.
Plan ID	A unique alpha-numeric code that identifies the home floor plan designs offered for sale by the builder.
Line Item	A unit used to measure each home upgrade option selected. Every unit of a product is considered to be 1 line item, even though it may be a duplicate product.
Product ID	A unique alpha-numeric code that identifies the home upgrade options offered for sale by the builder
X	The horizontal axis of the image. One of two coordinates used to identify the location of the selected product image.
Y	The vertical axis of the image. One of two coordinates used to identify the location of the selected product image.

The name of each table in FIG. 8 is underlined and the key element(s) (1) of each table are shown in bold. The symbols 1 or ∞ are used to indicate whether the relationship between tables is one to one or one to many. Thus, the line connecting the Lot T table with the Order T table has a 1 on the Lot T end and a 1 on the Order T end, thus indicating that there is a one-to-one relationship between the Lot T table and the Order T table. Each Lot T table entry corresponds to a single Order T table entry. By way of contrast, the line connecting the Lot T table to the Phase T table has an ∞ symbol on the Lot T end and a 1 on the Phase T end, thus indicating a many to one relationship between the Lot T table and Phase T table. Many Lot T table entries correspond to a single Phase T table entry.

The way the database is arranged, according to the invention, allows for the collection and processing of data for every aspect of a real estate transaction from phase and lot/cite selection through the construction and option selection process, all the way to total pricing and the acquisition and collection of data in a form suitable for linking to a mortgage application engine. Various aspects and portions of the database are accessible to a user or consumer by accessing those portions through an appropriate set of concatenated windows, menus and the like. Data for various aspects of the database contents is provided by those persons or organizations most closely associated with that portion.

For example, data regarding the phase, cite or lot plan portion would be data that was generated by an organization which was developing a specific location and which had defined the various development phases, lot locations and sizes, and home cites occupying those lots. Likewise, information relating to the internal construction and floor planning of a particular dwelling would be provided by a home builder or contractor in suitable form for display to a user. The home builder or contractor might also be the organization which provides information relating to specific upgrades and/or options available for each floor plan, and list them by type and/or manufacturer for ease of reference.

A sales staff might well be the entity responsible for acquiring and entering individual

1 personal data relating to a buyer whether prospective or actual. The type and extent of the data entered with respect to any particular buyer would depend on the particular requirements of a particular sales forces and would necessarily change depending on the type and amount of information that the sales force desire to acquire.

5 With regard to option and home pricing information, particularly when combined with a prospective buyers' personal information, it will be understood that the database contains sufficient information of the type typically required for mortgage applications, for example. In the case where a particular mortgage application format has been preestablished, this information may be easily acquired and rendered into the necessary format for transmission and entry into an electronic mortgage application engine of the type which generates a mortgage application at a remote site. The system according to the invention contains sufficient memory and processing power to enable various mortgage application formats to be stored in an associated database for easy access through the novel platform once all of the necessary phase, site, lot, floor plan and upgrade decisions have been made by a particular buyer.

15 It will be further understood that each of the individual database portions, whether alone or linked to other portions, are able to provide a substantial amount of information suitable for analysis by the generating organization or entity. In the case of the sales force, buyer information, contained in a relational database can provide a significant amount of demographic data and information that can be rendered and analyzed in accordance with any one of a number of metrics that are well understood by those skilled in the field of demographic analysis. Likewise, the particular desirability of certain options and upgrades, or the particular placement of optionally positioned items, such as wall sockets, light switches, light fixtures, and the like, particularly when analyzed in position to a number of available home floor plans, can alert a builder or contractor to the particular desirability of a specific set of features and placements in particular model, that is repeated over-and-over. This might allow a builder or contractor to offer that particular feature or placement as a standard configuration in order to further reduce costs.

25 Particular characteristics of such a database, and the characteristics of a menu-driven graphical user interface are depicted in the operational step diagrams of FIGs. 11A through 11E. The exemplary embodiments shown in FIGs. 11A-E establish a particular roadmap through the database and provide for the inclusion of mapping rules, hierarchical structure definition and the logical allocation of particular forms of information (i.e., buyer information or site plans, floor plans and upgrade selections) to functional groups of invocation menus.

30 As will be well understood by one having skill in the art, such a relational database containing the various forms of information, in accordance with the invention, can be accessed and the information contained therein displayed in any form desired by a system developer. Information records contained within the relational database can be displayed in anyone of a number of concatenated or nested windows and be arranged into a form most suitable for access by a user. Display windows are generally constructed in accordance with a graphical user

1 interface (GUI) and might be linked or related on a one-to-many many-to-one or many-to-many relationship.

5 It should also be understood that statistical processing may be performed on the contents of the database in order to generate statistical reports on various linked relationships that are highly useful to the various different entities that must cooperatively participate in any real estate transaction. For example, statistical processing is able to develop relationships between a base home cost, a buyers income or education level and the types and amounts of upgrade options those buyers typically choose. Statistical information relating to financial transactions such as mortgage approval rates, and purely subjective criteria such as site desirability or water faucet color may now be acquired and analyzed.

10 Referring now to FIG. 9, is a flow chart showing an example of the operation of the present invention. The program is initialized or started, 100, and a user logs on 102. Logging on comprises having a user enter a user ID and, preferably, a password. If, 103, the user ID and/or password, indicate that the user has an administrative security level, then the user may proceed to a home page query screen which facilitates searching, 104, of the entire database with access to all records thereof.

15 If, 103, the user ID and/or password, indicate that the user does not have an administrative security level, then the user is taken to a home page query screen where the user can search, 105, the entire database with access only to the user's own files.

20 Whether the user has an administrative security level or not, the user may proceed to either the floor plan image design screen, 106, i.e., the floor plan and upgrade options web page of FIG. 6, or to the buyer information screen, 113, (FIG. 4). If the user goes to the floor plan image design screen, 106, then the user may next select, 107, one or more tool box, 101, icons, 102, (FIG. 6) and then drag and drop the selected icon(s), 102, to the desired location on the floor plan, 100.

25 Each time a user drags and drops a selected icon, 102, the computer updates the image, 109, so as to show the icon, 102, at the desired location on the floor plan, 100, and also updates the pricing web page (FIG. 7) to indicate the item selected and its price, as well as the price of the building (home).

30 After all of the upgrade options have been selected, the file containing the locations of the dragged and dropped icons, 102, upon the floor plan, 100, is saved, 110, and pricing is calculated, 111, preferably simultaneously. The calculation, 111, of pricing typically involves the multiplication of the selected number of each upgrade option times the price of each upgrade option. Calculation, 111, also preferably includes the determination of a total, so that the purchaser knows the total cost for all upgrades. Alternatively, all pricing calculations may be updated each time a new upgrade option is selected.

35 The floor plan, 100, having the locations of desired home upgrades indicated thereon, may be viewed or printed, 112. Similarly, the inventory of FIG. 7 may likewise be viewed or printed,

1 112.

The process of displaying the floor plan image design screen, 106, and selecting, 107, home upgrade options, as well as the associated image updating, 109, file saving, 110, price calculating, 111, and image printing, 112, may be repeated as necessary, so as to provide a plurality of alternative design schemes for a given home purchaser.

When the buyer information screen, 113, (FIG.) is displayed, then the user is given an opportunity to enter data to update, 114, the purchaser's buyer information record. After saving, 115, the file, the user may then view or print, 116, the buyer information, as desired.

FIG. 10 shows an example of a flow chart of the system administration. After the system is started, 200, then a user logs on, 201. If the user does not have security level administrative access, 202, then the user is required to exit, 235, and the program stops, 237.

However, if the user does have security level administrative access, 202, then the user ID and/or password are checked to see whether the user has Admin Level #1 or Admin Level #2 access, 203. If the user has both Admin Level #1 and Admin Level #2 access, then the user may select Security Level Admin #1 and Admin Level #2, 203. After selecting Security Level Admin #1 and Admin #2, then the user is provided access to the pricing table, 204, where the user may update, 206, the pricing table and save, 207, the updated pricing table data. The pricing table may be viewed and/or printed, 208, as desired. The pricing table contains the unit cost for each available upgrade option.

Having both the Level Admin #1 and Level Admin #2 also provides access to the customer information table, 209, from which the user may update, 210, the customer information table, save the updated customer information table, 211, and view and/or print, 212, the customer information table.

If the user has both Level Admin #1 and Level Admin #2, then the user may also access the report menu option, 213, select, 214, a report to printed, and print, 216, the selected report. The reports are preferably pre-defined and may contain any desired information from the database.

If, the user has Security Level Admin #2 (Master Security), then the user is provided access to the lot maintenance table, 219, tool box icon maintenance table, 224, and the security table 228.

Accessing the lot maintenance table, 219, allows a user to update, 220, the lot maintenance table via scanning of floor plans. The user may also delete any floor plans which are no longer required.

The user may assign, 221, a desired image to a lot ID and/or update or modify any previously assigned images. The updates may be saved, 222, and also may be viewed or printed, 223, as desired.

After entering the tool box icon maintenance table, 224, a user may add or delete tool box icons and assign, 225, product names to each icon, as desired. Updates to the tool box icon

1 maintenance table are saved, 226, and may then be viewed or printed 227, as desired.

After entering the security table, 228, a user may add or delete, 229, names to a table and assign security levels to each name. The updates are then saved, 231, and may be viewed or printed, 232, as desired.

5 According to the present invention, a convenient, easy to use graphical method is provided for indicating which upgrade options are selected and where upgrade options are to be located, as well as the cost of the upgrade options selection and cost of the building. Copies of a floor plan showing the desired locations of the upgrade options and/or an inventory of the upgrade options may be printed, as desired. The present invention allows a buyer to define a custom
10 design, i.e., a selection of upgrade options, which is within the purchaser's budget. The use of a web page to perform the selection of home upgrade options allows a user to perform this task from any desired location, and to communicate with other locations via an intranet or via the Internet.

15 The present invention mitigates the need for a sales person to participate in the upgrade option selection process. The clarity provided by the graphical representation of the icons, 102, on the floor plan, 100, (FIG. 6) result in less rework, which, of course, is costly for the seller. Less supervision is necessary for subcontractors who install the desired upgrades, since the desired locations of the upgrades are clearly indicated upon the floor plan, 110.

20 The present invention finds particular application in planned communities and housing developments, particularly where builders provide a limited number of home designs, e.g., typically approximately 3 to 10 different floor plans, from which a buyer may choose. The limited number of home designs tends to enhance the desire of home purchasers to customize their homes.

25 It is understood that the exemplary system for specifying home upgrade options described herein and shown in the drawings represents only a presently preferred embodiment of the invention. Indeed, various modifications and additions may be made without departing from the spirit and scope of the invention. For example, various different methods for data entry and/or positioning the selected icons upon the floor plan are contemplated. Thus, the user may use voice recognition for data entry and/or to position the icons on the floor plan as desired. Alternatively,
30 the user may select from a plurality of different standard positions for each upgrade option utilizing a menu. These and other modifications and additions may be obvious to those skilled in the art and may be implemented to adapt the present invention for a variety of different of uses and the scope of the invention should be limited by the appended claims, wherein

AMENDED CLAIMS

[received by the International Bureau on 24 August 2000 (24.08.00);
original claims 1,15,29 and 43 amended; remaining claims unchanged (5 pages)]

1. A method for specifying upgrade options for a new building comprising the steps
of:

scanning a floor plan of the building into a first computer to form a scanned floor plan;

5 displaying the scanned floor plan upon the monitor of a second computer while
simultaneously displaying a plurality of icons representative of a corresponding plurality of
different upgrade options upon the monitor of the second computer; and

10 selecting at least one of the available upgrade options and designating where the upgrade
option is to be placed in the building by placing the icons at corresponding locations upon the
displayed floor plan, and wherein the floor plan is automatically updated to incorporate the
selected upgrade options..

2. The method as recited in Claim 1, wherein the first computer and the second
computer are the same computer.

15 3. The method as recited in Claim 1, wherein the second computer comprises at least
one of a laptop computer, a palm computer, a pen base computer, a desk top computer and any
wireless network computer.

4. The method as recited in Claim 1, wherein the step of displaying a plurality of
icons comprises displaying a plurality of icons in a toolbox and the icons are placed by voice
recognition and/or by dragging and dropping icons.

20 5. The method as recited in Claim 1, further comprising the step of adding a text
comment to a dropped icon.

6. The method as recited in Claim 1, further comprising the step of compiling a list
of selected upgrade options.

25 7. The method as recited in Claim 1, further comprising the step of compiling a list
of selected upgrade options and prices for the selected upgrade options.

8. The method as recited in Claim 1, further comprising the step of calculating a
total price for the selected upgrade options.

9. The method as recited in Claim 1, further comprising the step of calculating a
total price for the building, including the upgrade options.

10. The method as recited in Claim 1, further comprising the step of forming a database of purchaser information.

11. The method as recited in Claim 1, further comprising the step of forming a database of purchaser information, the database comprising the name of the purchaser and the upgrade options purchased by the purchaser.

12. The method as recited in Claim 1, wherein the step of displaying a plurality of icons comprises displaying only those icons which are representative of upgrade options that are available for the displayed floor plan.

13. The method as recited in Claim 1, wherein the floor plan and the icons are displayed as part of a web page.

14. The method as recited in claim 1, wherein the building comprises a home.

15. A system for specifying upgrade options for a building, the system comprising:
a scanner for scanning floor plans;

a computer in communication with the scanner, the computer having a monitor; and

wherein the computer is configured to display a plurality of icons representative of upgrade options while simultaneously displaying a scanned floor plan, the computer being further configured to allow selected icons to be placed at desired locations upon the displayed floor plan, and wherein the floor plan is automatically updated to incorporate the upgrade options represented by the selected icons.

16. The system for specifying upgrade options for a new building as recited in Claim 15, further comprising a plurality of digitized floor plans stored for use by the computer.

17. The system for specifying upgrade options for a new building as recited in Claim 15, wherein the computer comprises at least one of a laptop computer, a palm computer, a pen base computer, a desk top computer and any wireless network computer.

18. The system for specifying upgrade options for a new building as recited in Claim 15, wherein the computer is configured to display the icons in a toolbox, and to place the icons by voice recognition and/or by dragging and dropping icons.

19. The system for specifying upgrade options for a new building as recited in Claim 15, wherein the computer is configured to facilitate adding a text comment to an icon.

20. The system for specifying upgrade options for a new building as recited in Claim 15, wherein the computer is configured to facilitate compiling of a list of selected upgrade options.

21. The system for specifying upgrade options for a new building as recited in Claim 15, wherein the computer is configured to facilitate compiling of a list of selected upgrade options and prices for the selected upgrade options.

22. The system for specifying upgrade options for a new building as recited in Claim 15, wherein the computer is configured to calculate a total price for the selected upgrade options.

23. The system for specifying upgrade options for a new building as recited in Claim 15, wherein the computer is configured to calculate a total price for the building, including the upgrade options.

24. The system for specifying upgrade options for a new building as recited in Claim 15, wherein the computer is configured to form a database of purchaser information.

25. The system for specifying upgrade options for a new building as recited in Claim 15, wherein the computer is configured to form a database of purchaser information, the database comprising the name of the purchaser and the upgrade options purchased by the purchaser.

26. The system for specifying upgrade options for a new building as recited in Claim 15, wherein the computer is configured to display only those icons which are representative of upgrade options that are available for the displayed floor plan.

27. The system for specifying upgrade options for a new building as recited in Claim 15, wherein the computer is configured to display the floor plan and the icons as part of a web page.

28. A system for specifying upgrade options for a new building as recited in claim 15, wherein the new building comprises a home.

29. A system for specifying upgrade options for a new building, the system comprising:

a plurality of digitized floor plans;

a computer having a monitor for displaying the floor plans; and

wherein the computer is configured to display a plurality of icons representative of upgrade options while simultaneously displaying a selected one of the digitized floor plans, the

computer being further configured to allow selected icons to be placed at desired locations upon the scanned floor plan, such as by voice recognition and/or by dragging and dropping icons, and wherein the selected one of the digitized floor plans is automatically updated to incorporate upgrade options represented by the selected icons.

5 30. The system for specifying upgrade options for a new building as recited in Claim 29, wherein the digitized floor plans comprise scanned floor plans.

 31. The system for specifying upgrade options as recited in claim 29, wherein the computer is configured to display only those icons which represent upgrades that are available for a floor plan which is currently being displayed.

10 32. The system for specifying upgrade option as recited in claim 29, further comprising a toolbox within which the icons are displayed upon the monitor.

 33. The system for specifying upgrade options as recited in claim 29, wherein the computer comprises at least one of a laptop computer, a palm computer, a desk top computer and any wireless network computer.

15 34. The system for specifying upgrade options as recited in claim 29, wherein the computer is configured to facilitate adding a text comment to an icon.

 35. The system for specifying upgrade options as recited in claim 29, wherein the computer is configured to compile a list of selected upgrade options.

20 36. The system for specifying upgrade options as recited in claim 29, wherein the computer is configured to compile a list of selected upgrade options and prices for the selected upgrade options.

 37. The system for specifying upgrade options as recited in claim 29, wherein the computer is configured to calculate a total price for the selected upgrade options.

25 38. The system for specifying upgrade options as recited in claim 29, wherein the computer is configured to calculate a total price for the building, including the upgrade options.

 39. The system for specifying upgrade options as recited in claim 29, wherein the computer is configured to form a database of purchaser information.

40. The system for specifying upgrade options as recited in claim 29, wherein the computer is configured to form a database of purchaser information, the database comprising the name of the purchaser and the upgrade options purchased by the purchaser.

5 41. The system for specifying upgrade options as recited in claim 29, wherein the floor plan and the icons are displayed as part of a web page.

42. The system for specifying upgrade options as recited in claim 29, wherein the new building comprises a home.

43. A computer usable medium having computer readable program code embodied therein, the computer readable program code being executable to perform the steps of:

10 displaying a floor plan upon a monitor;

displaying a plurality of icons representative of a corresponding plurality of upgrade options upon the monitor, the icons being displayed simultaneously with the floor plan; and

15 facilitating selection of desired upgrade options and facilitating designation of where the selected upgrade options are to be placed in a building by placing the icons at corresponding locations upon the displayed floor plan, such as by voice recognition and/or by dragging and dropping icons, wherein the floor plan is automatically updated to incorporate the desired upgrade options.

44. The computer usable media as recited in Claim 43, wherein the step of displaying a floor plan comprises displaying a scanned image of a floor plan.

20 45. The computer usable media as recited in Claim 43, wherein the computer readable program code is further executable to facilitating scanning of a floor plan.

46. The computer usable media as recited in Claim 43, wherein the step of displaying a plurality of icons comprises displaying a plurality of icons in a toolbox.

25 47. The computer usable media as recited in Claim 43, wherein the computer readable program code is further executable to add a text comment to an icon.

48. The computer usable media as recited in Claim 43, wherein the computer readable program code is further executable to compile a list of selected upgrade options.

30 49. The computer usable media as recited in Claim 43, wherein the computer readable program code is further executable to compile a list of selected upgrade options prices for the selected upgrade options.

1 50. The computer usable media as recited in Claim 43, wherein the computer readable
program code is further executable to calculate a total price for the selected upgrade options.

5 51. The computer usable media as recited in Claim 43, wherein the computer readable
program code is further executable to calculate a total price for the building, including selected
upgrade options.

10 52. The computer usable media as recited in Claim 43, wherein the computer readable
program code is further executable to form a database of purchaser information.

15 53. The computer usable media as recited in Claim 43, wherein the computer readable
program code is further executable to form a database of purchaser information, the database
comprising the name of the purchaser and the upgrade options purchased by the purchaser.

20 54. The computer usable media as recited in Claim 43, wherein the step of displaying
a plurality of options comprises displaying only those options which are available for the
displayed floor plan.

25 55. The computer usable media as recited in Claim 43, wherein the steps of displaying
the floor plan and displaying the icons comprise displaying a web page.

30 56. The computer usable media as recited in claim 43, wherein the building comprises
a home.

35 57-56. A information management method, performed by a computer hosted application
program, which facilitates a plurality of business processes associated with a real estate
transaction, comprising the steps of:

 providing information relating to at least a graphical definition of a real estate entity
in a database;

30 providing information relating to demographic indicia of a buyer in said database;
 providing information relating to a plurality of customization options available for
said real estate entity, in said database;

 linking the graphical definition information with the buyer demographic indicia and
the customization options;

35 displaying the graphical definition;
 choosing customization options from the database; and
 associating the customization options with locations defined within the graphical
definition to thereby define a customized graphical definition.

1 ⁵⁸
57. The information management method according to claim 56, further comprising:
 associating a cost index with a base version of the real estate entity;
 associating a cost index with each respective one of the plurality of customization
options; and
5 summing the cost indexes of the customization options chosen from the database
with the cost index of the real estate entity.

⁵⁹
58. The information management method according to claim 57, further comprising:
 formatting the summed cost indices in accordance with a financial transaction
10 software overlay; and
 providing the formatted summed cost indices to a financial institution.

⁶⁰
59. The information management method according to claim 57, wherein the database
is a relational database and wherein the displaying the graphical definition step and the choosing
15 customization options step is performed by a user through a graphical user interface.

⁶¹
60. The information management method according to claim 59, further comprising:
 storing the customized graphical definition;
 forwarding a copy of the stored graphical definition to a construction entity to
20 thereby provide a customized construction plan containing customization options selected and
located by a user.

⁶²
61. The information management method according to claim 59, further comprising:
 providing a set of statistical analysis software overlay applications;
25 performing statistical analysis on database elements in accordance with the set of
statistical software overlay applications; and
 generating a set of statistical analysis reports linking at least demographic indicia
with customized graphical definitions and cost indicia.

⁶³
62. An information management system, of the type including a computer hosted
application program, which facilitates a plurality of business processes associated with a real
estate transaction, the system comprising:

 at least a computer, having a graphical display and a memory storage area;
 an application program including a relational database;
35 a first database portion including at least a graphical definition of a real estate
entity;
 a second database portion including demographic indicia related to individual ones
of a plurality of buyers;

1 a third database portion including information relating to a plurality of
customization options available for said real estate entity;

a relation definition linking graphical definition information with the buyer
demographic indicia and the customization options;

5 a graphical user interface including a graphical display capability; and
wherein a user chooses customization options from the database and associates the
customization options with locations defined within the graphical definition to thereby define a
customized graphical definition.

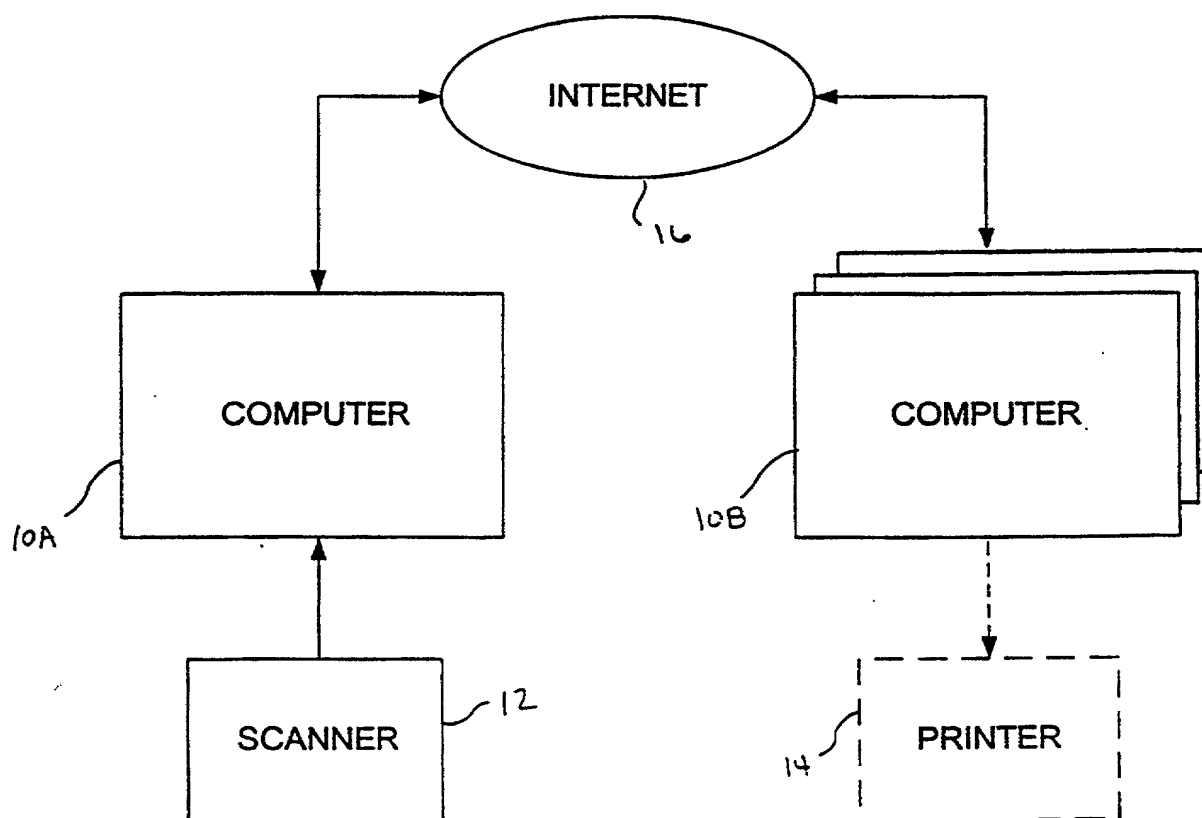
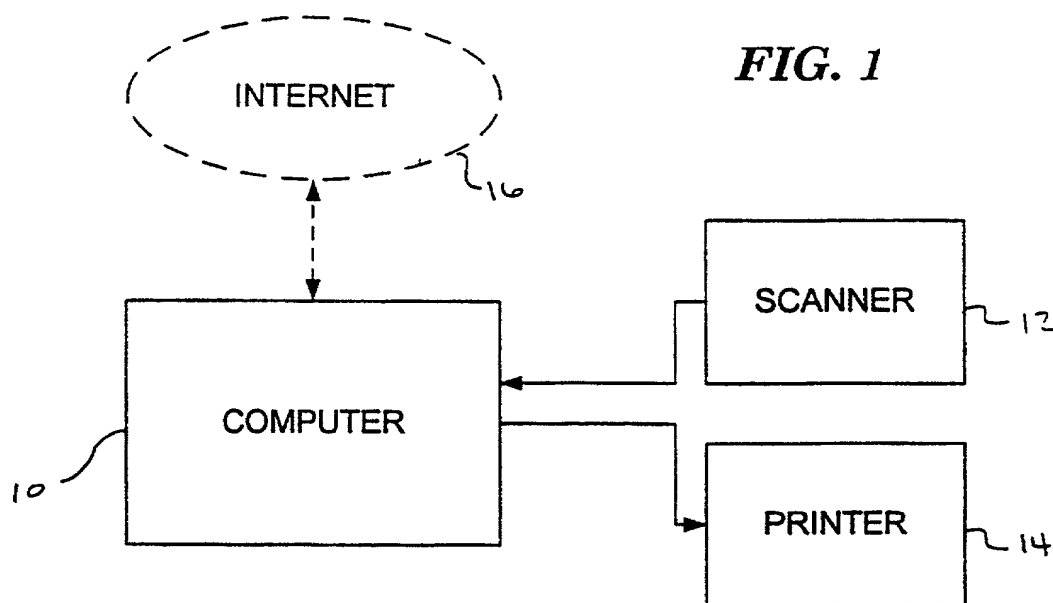
10 ⁶⁴
63. The information management system according to claim 62, further comprising:
a first cost index associated with a base version of the real estate entity;
a multiplicity of cost indexes, each associated with a respective one of the plurality
of customization options; and

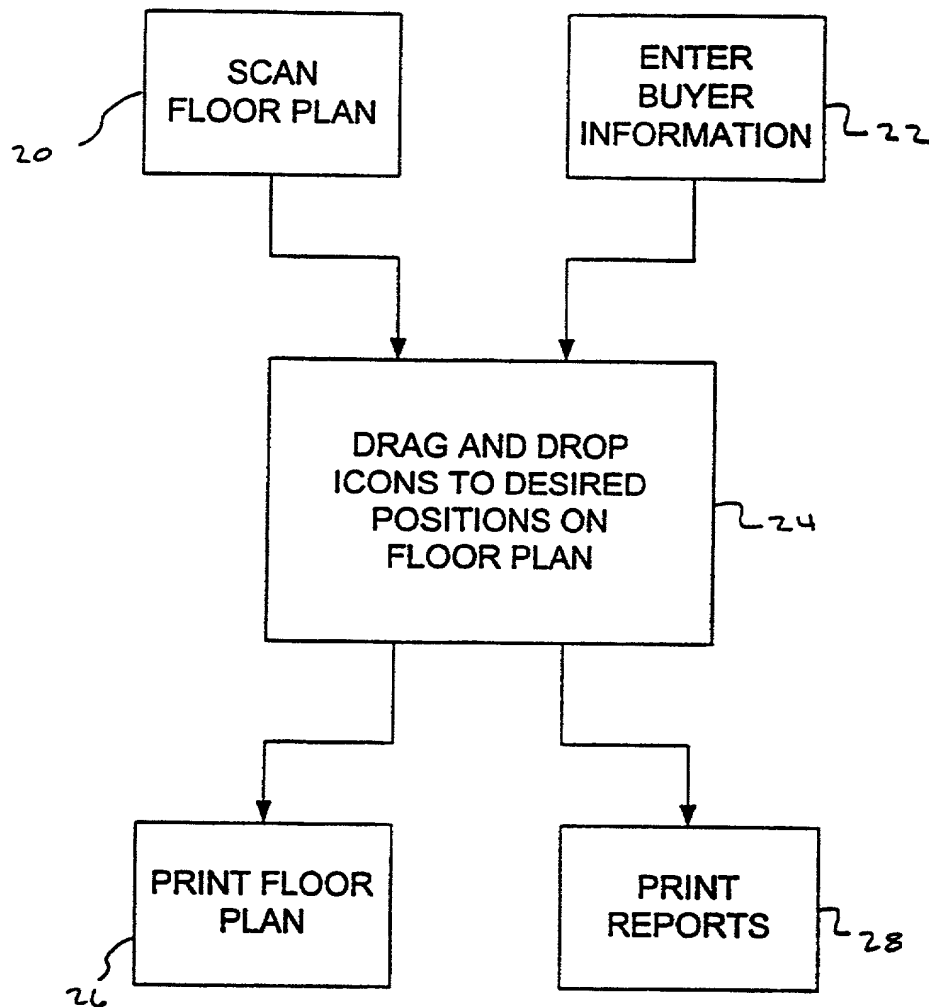
15 a summing subroutine for summing the cost indexes of the customization options
chosen from the database with the cost index of the real estate entity.

20 ⁶⁵
64. The information management system according to claim 63, further comprising:
a financial transaction software overlay, defined by a financial institution; and
a formatting engine, the engine formatting the summed cost indices in accordance
with the financial transaction software overlay, wherein the formatted summed cost indices are
transmitted to the financial institution defining the software overlay.

25 ⁶⁶
65. The information management system according to claim 63, further comprising a
set of statistical analysis software overlay applications, the applications, wherein the applications
generate a set of statistical analysis reports linking at least demographic indicia with customized
graphical definitions and cost indicia.

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FIG. 1**FIG. 2**

**FIG. 3**

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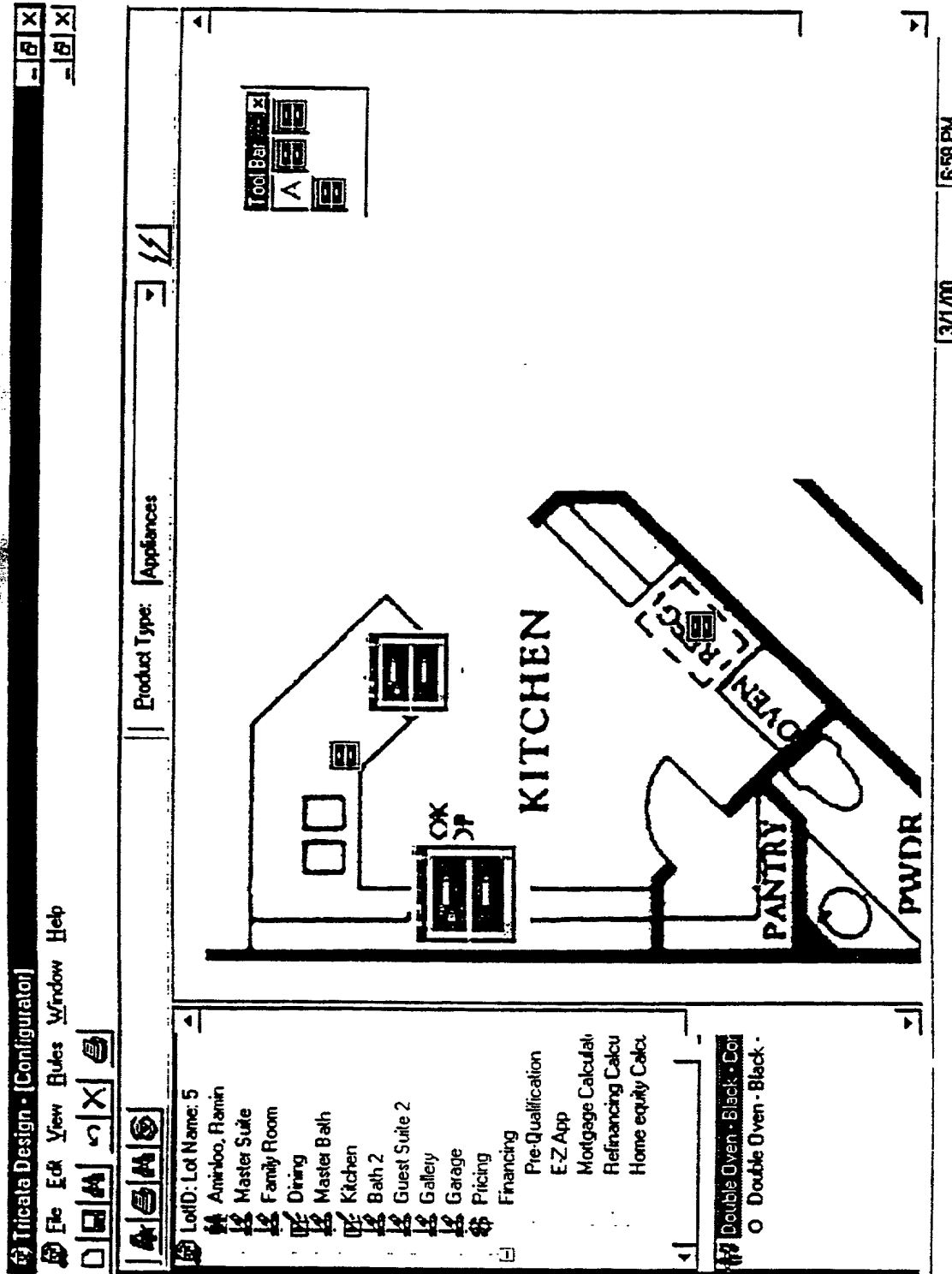


FIG. 6A

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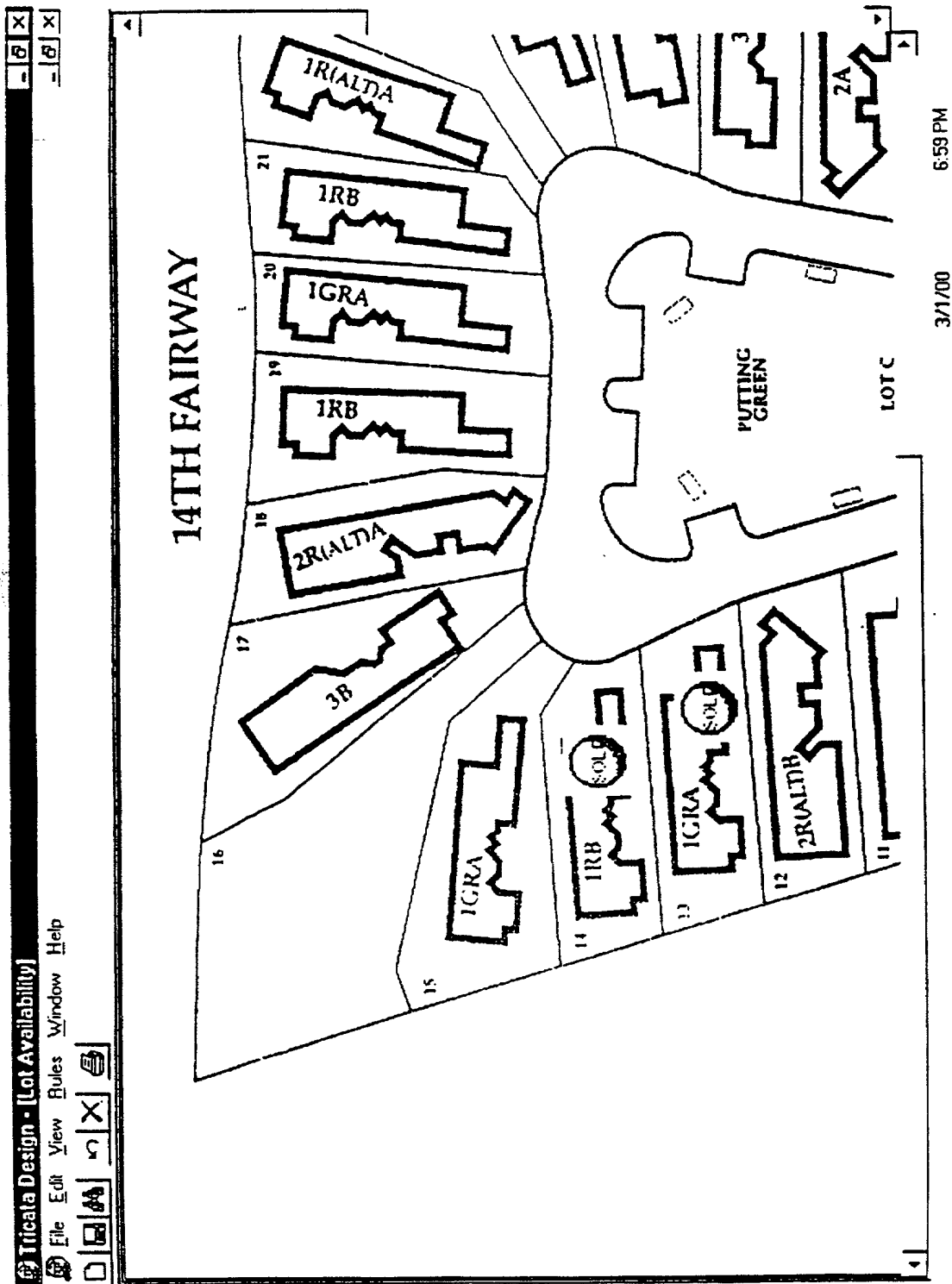


FIG. 6B

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Tricatala Design - [Configurator]

File Edit View Rules Window Help



LotID: Lot Name: 5

Master Suite

Living

Dining

Master Bath

Kitchen

Bath 2

Guest Suite 2

Garage

Pricing

Financing

Pre-qualification

EZ App

Mortgage Calculator

Refinancing Calculator

Home equity Calculator

Page: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 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526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 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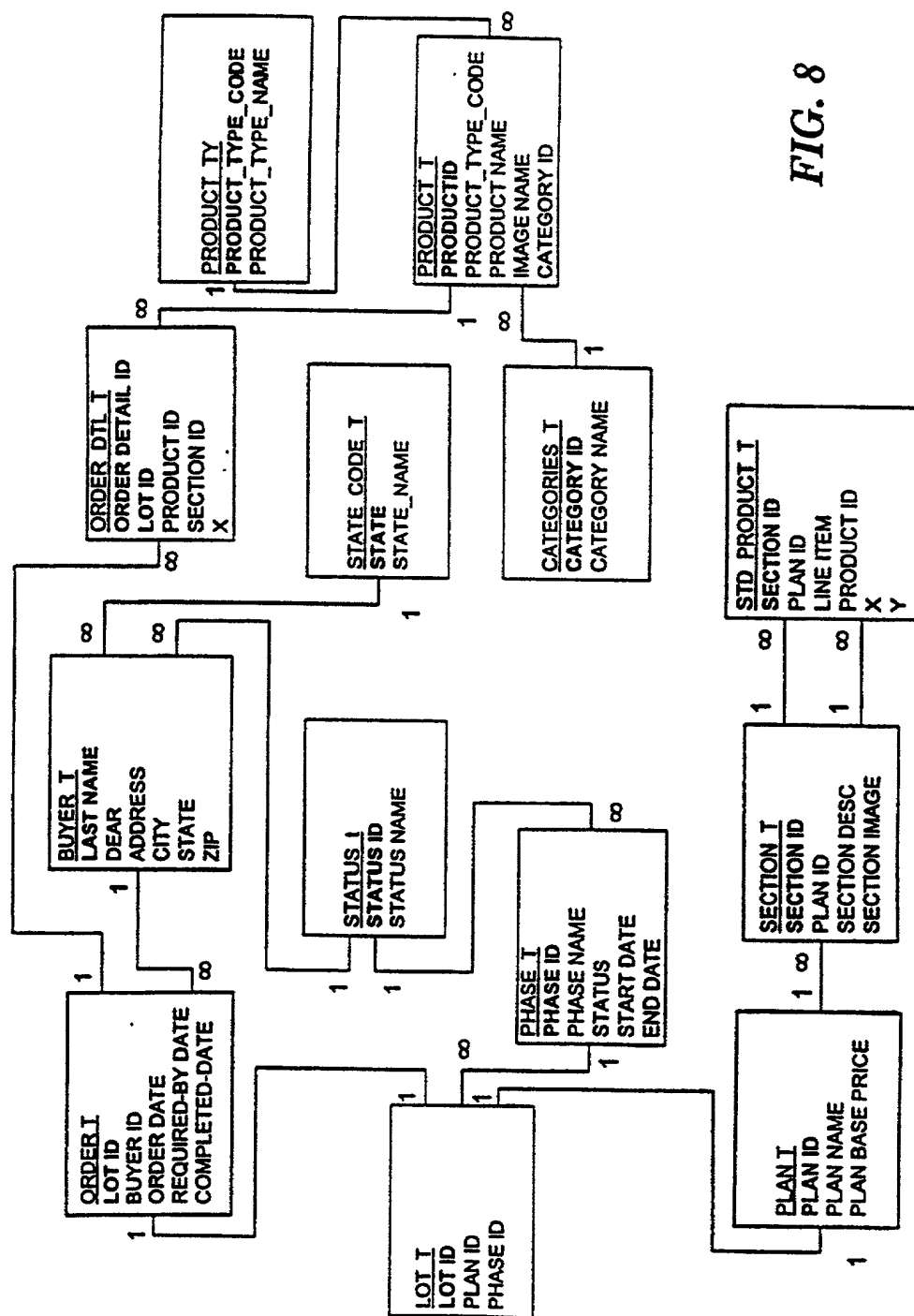


FIG. 8

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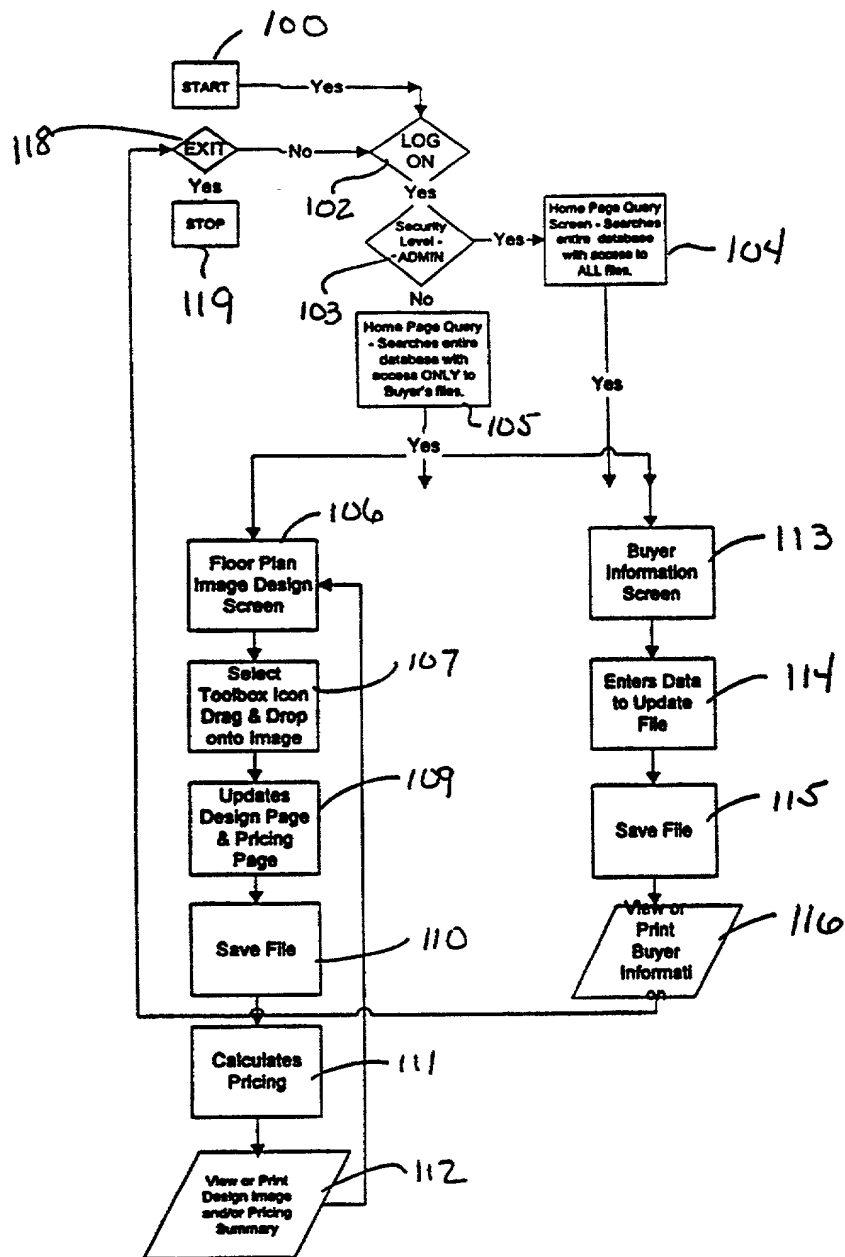
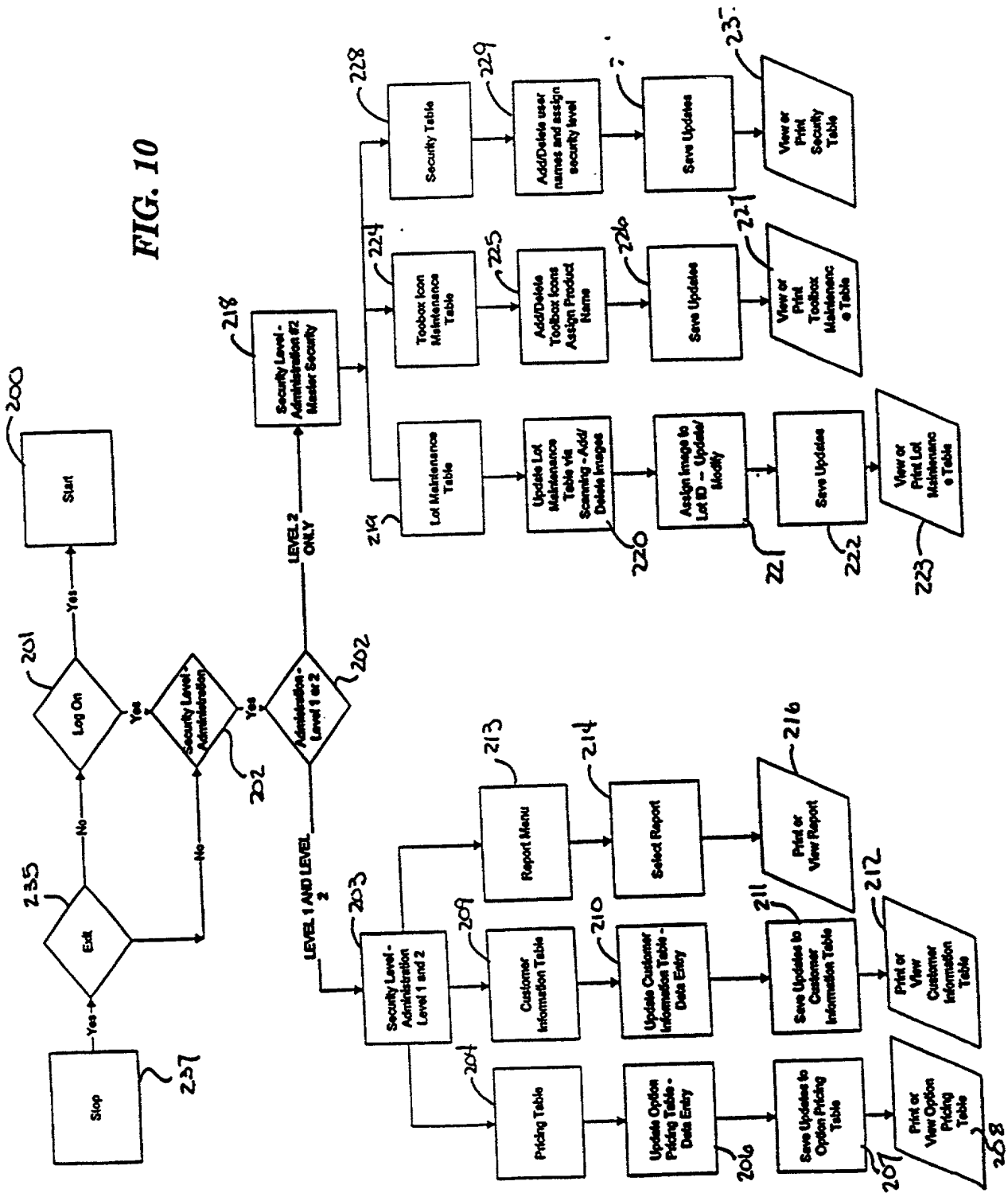


FIG. 9

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FIG. 10



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MENU:

FILE	EDIT	VIEW	RULES	WINDOWS	HELP
------	------	------	-------	---------	------



Open - Selects an electronic document or file to open and use in the application.
 Close - Selects an electronic document or file to close in the application.

Save - Saves selected changes/modifications to an electronic file or document.

Save All - Saves ALL changes/modifications to an electronic file or document.

Properties - Identifies the general properties (file type, location, size etc.), statistics (number of words, paragraphs, edit time, etc.), and contents of the or file.

Page Setup - Selects the document's margin size, paper size and orientation, paper source and layout.

Print Preview - Permits user to preview document format and layout before printing.

Print - Sends print command of document or file to printer for printing.

Send - Sends the document or file to an e-mail recipient, a routing recipient, a folder or a fax recipient.

Exit - Closes the application on the computer.



Clear-New - Clears all the data fields and prepares template for new data entry.

Save - Saves selected changes/modifications to an electronic file or document.

Find - Searches the document or file for specific data elements.

Undo - Reverses and nullifies the last command/action invoked on the document.

Delete - Identifies data element(s) and deletes them from the document or file.

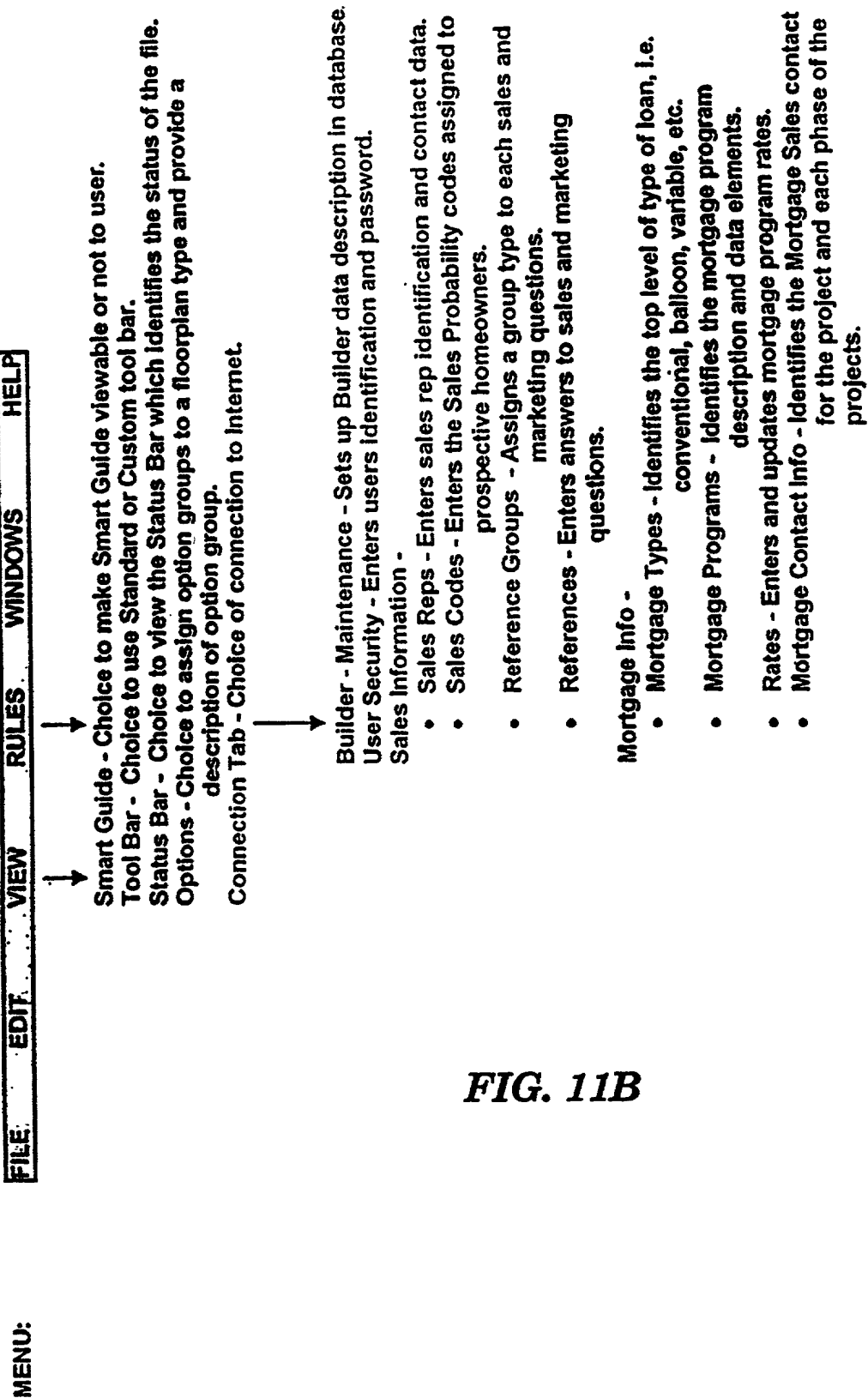
Cut - Identifies data elements(s) and deletes them from the current document or file.

Copy - Identifies data element(s) to be duplicated.

Paste - Inserts the identified data elements into a new document.

FIG. 11A

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**FIG. 11B**

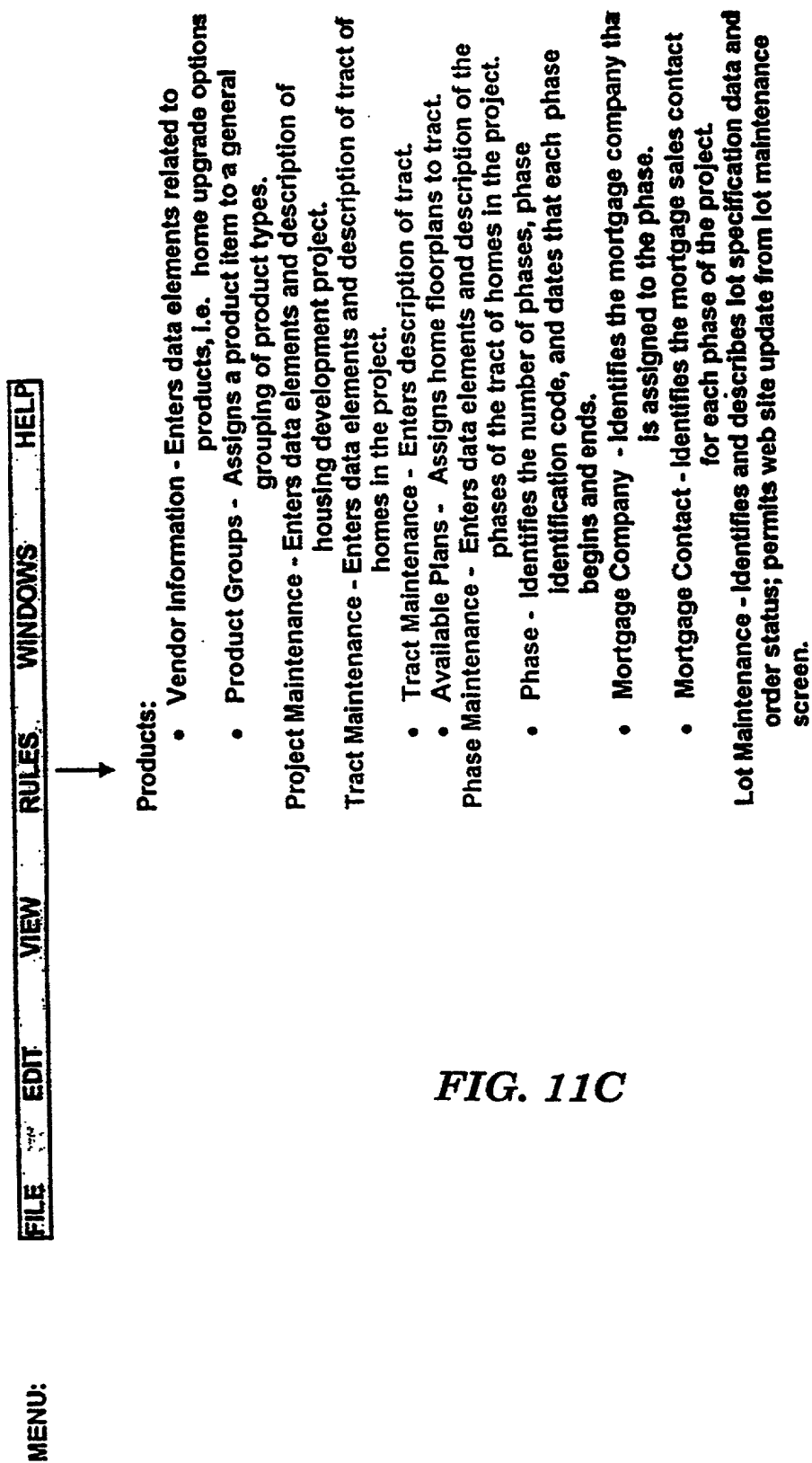


FIG. 11C

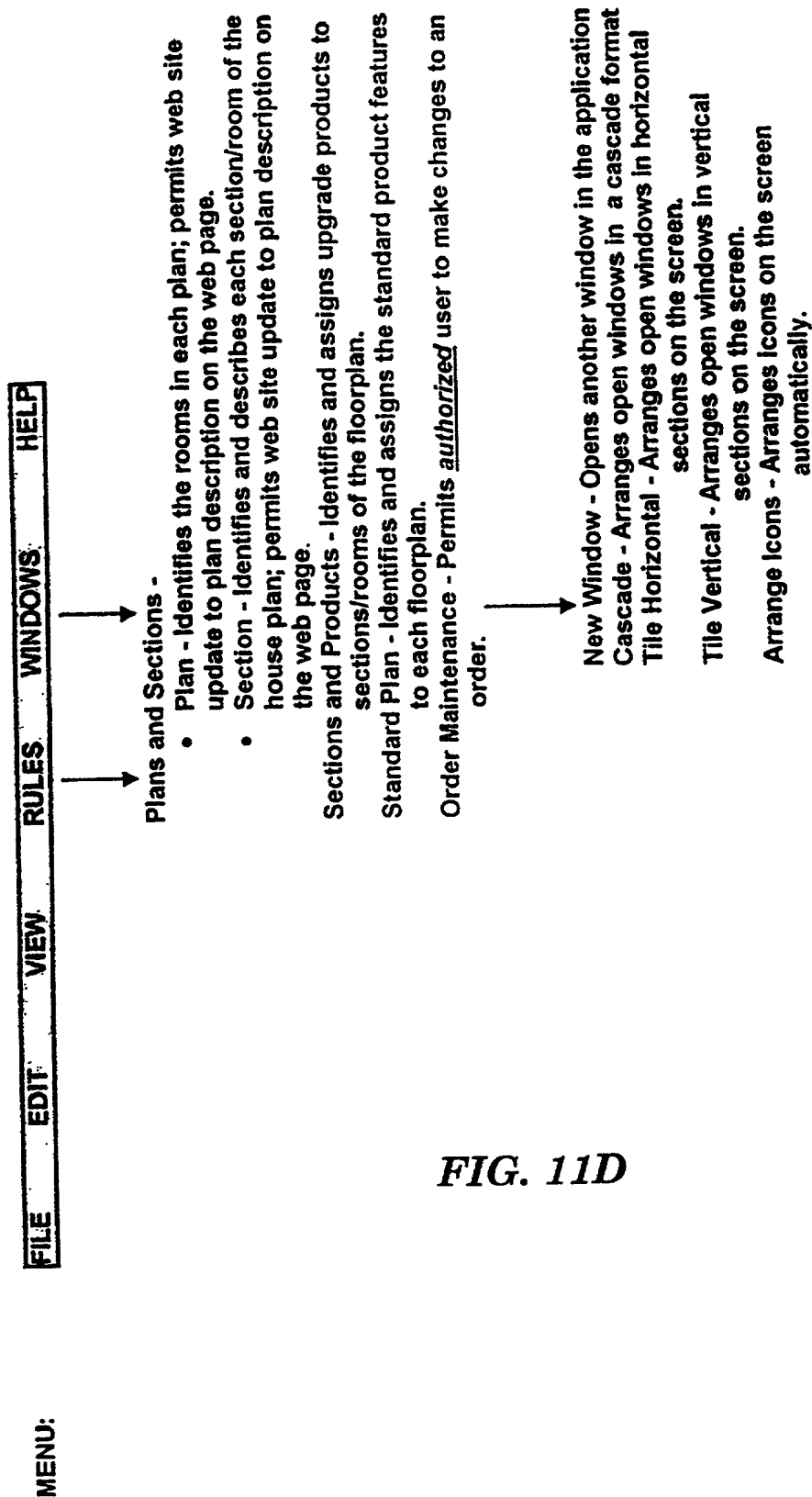
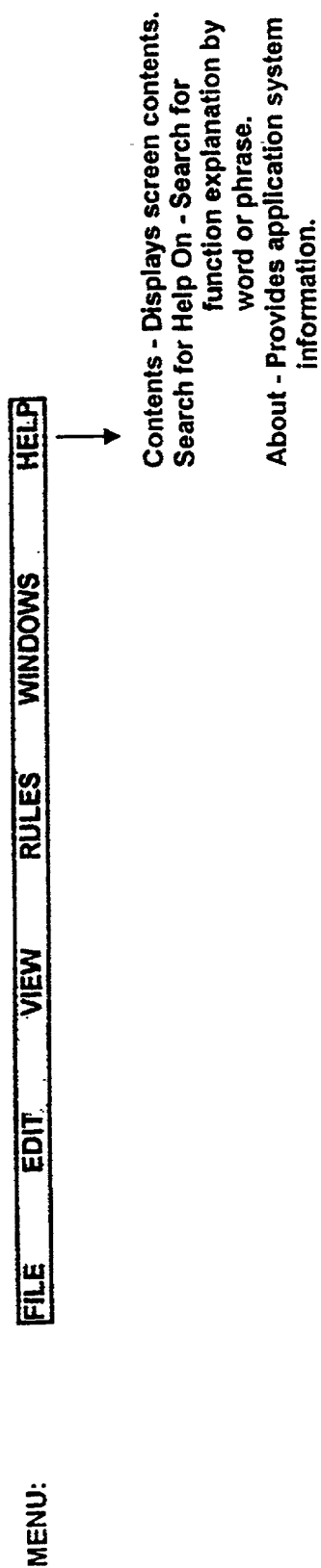


FIG. 11D

**FIG. 11E**

PATENT

DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATIONS

DOCKET NO.: 12322-02

As a below named inventor I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled SYSTEM FOR SPECIFYING BUILDING UPGRADE OPTIONS AND DETERMINING BUILDING COST, the specification of which is attached hereto unless the following is checked:

☒ was filed on March 17, 2000 as United States Application Number or PCT International Application Number PCT/US00/07281 and was amended on August 29, 2000 (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or §365(b) of the foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

<u>Application Number</u>	<u>Country</u>	<u>Filing Date (day/month/year)</u>	<u>Priority Claimed</u>
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I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below.

<u>Application Number</u>	<u>Filing Date</u>
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I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or any PCT International application designating the United States, listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

<u>Application Number</u>	<u>Filing Date</u>	<u>Patented/Pending/Abandoned</u>
PCT/US00/07281	03/17/00	Pending
09/271,093	03/17/99	Pending

POWER OF ATTORNEY: I hereby appoint the following attorneys and agents of the law firm of STRADLING YOCCA CARLSON & RAUTH, to prosecute this application and in any international application under the Patent Cooperation Treaty based on it and to transact all business in the U.S. Patent and Trademark Office connected with either of them in accordance with instructions from assignee of the entire interest in this application; or from the first or sole inventor named below in the event the application is not assigned; or from _____ in the event the power granted herein is for an application filed on behalf of a foreign attorney or agent.

PATENT

DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATIONS

DOCKET NO.: 12322-02

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The authority under this Power of Attorney of each person named above shall automatically terminate and be revoked upon such person ceasing to be a member or associate of or of counsel to that law firm.

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I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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